

**U.S. EPA REMOVAL ACTION
NH DIOXANE CONTAMINATION SITE, ATKINSON, NEW HAMPSHIRE**

**DATA GAPS ASSESSMENT
Document Control Number R-7120**

**Region 1 Superfund Technical Assessment and Response Team III
Contract EP-W-05-042, Task Order 0008**

28 June 2012

U.S. Environmental Protection Agency (EPA) has requested that Weston Solutions, Inc. (WESTON®) under the Region 1 Superfund Technical Assessment and Response Team III (START) contract provide technical assistance in the form of engineering design products and services for the New Hampshire Dioxane Contamination Site (SSID: 01KA, the Site), located in Atkinson, Rockingham County, New Hampshire. The work was authorized as a Task Order (TO) in accordance with START Contract Line Item Number (CLIN) 1002 Non-Level A services using the Indefinite Delivery/Indefinite Quantity (ID/IQ) fixed labor categories, CLIN 1005 (Travel) and CLIN 1006 [Other Direct Costs (ODCs)] in response to the EPA Statement of Work (SOW), entitled *Statement of Work, New Hampshire Dioxane Contamination, SSID 01KA, Atkinson, New Hampshire, Task Order for Technical Assistance, Originally issued May 9, 2012; Revised on June 6, 2012.*

The Scope of Work included providing technical assistance to EPA with a preliminary review of documents, a site visit by representatives of the WESTON ID/IQ primary project team and discussions with the EPA On-Scene Coordinator (OSC). The WESTON ID/IQ project team was to review project understandings and relevant data obtained as part of the TO and identify deficiencies in data potentially critical for further engineering work and/or implementation of likely mitigation approaches at the Site. These data gaps were to be presented to the OSC in a summary listing data gaps, along with descriptions of the missing or deficient data and potential sources or means to obtain said data. Subsequent discussions regarding the data gaps document were to occur through conference calls with the OSC.

The following presents the results of efforts for determining the data gaps and includes WESTON's understanding of the Site and potential mitigation approaches, as well as a listing of critical data gaps that should be considered by EPA.

SITE UNDERSTANDING

The New Hampshire Department of Environmental Services (NHDES) requested assistance from EPA to address 1,4 Dioxane contamination in private wells located in the vicinity of Emery Drive, Belknap Drive, Brookside Terrace, Oak Ridge Drive, Deer Run Road, Stonewall Terrace, the Waterwheel Estates development on Chandler Drive, and Westside Drive south of Oak Ridge Drive in Atkinson, New Hampshire (Area of Concern). The concentration of 1,4 Dioxane was found to exceed the NHDES Groundwater Quality Standards in several wells. NHDES is investigating but has not yet been able to identify the source of the 1,4 Dioxane groundwater contamination. Investigations as to the source and extent of the impact are ongoing.

NHDES became aware of the private drinking water well contamination when routine well testing indicated the presence of 1,1 Dichloroethane and 1,2 Dichloroethylene. NHDES initiated a sampling effort to determine the extent of groundwater contamination in the area and the possible source. During the investigation, NHDES discovered the presence of 1,4 Dioxane, a contaminant not normally tested for during the routine well sampling.

As presented by the EPA OSC, EPA plans to perform a Removal Action at the Site to mitigate the imminent hazard of contaminants present in the private residential drinking water wells in the area. While NHDES will continue the investigation regarding the source and extent of the contamination, EPA's work will focus on providing a safe source of drinking water to the impacted homes in the Area of Concern. Work will include evaluating various options for the supply of drinking water, the EPA selection of the option, and the design and implementation of that alternative. A large community water supply owned and operated by the Hampstead Area Water Company (HAWC) currently serves many areas of Atkinson but the impacted homes are not within the current HAWC service area, and connection to this supply will be evaluated. Work is anticipated to be performed during the summer and autumn of 2012.

Several potential approaches are being preliminarily considered for the Site that will address the issues of concern for EPA. These approaches include:

- Furnishing bottled water (current short-term approach and baseline option).
- In-home individual water treatment units (Point of Entry Units).
- Connection to the HAWC water source and distribution system.
- Connection to the nearest publicly owned water system.
- Development of new water source(s), potential treatment, and distribution.

These approaches form the basis of the data gaps analysis.

DATA GAPS

Two members of the WESTON project team (New Hampshire Professional Engineer, and the Engineering Design Manager) attended meetings with the OSC and representatives of NHDES, HAWC, and the Town of Atkinson and performed a site reconnaissance on 14 May 2012, to review site conditions and surroundings and to discuss the project. Subsequently, through an internal meeting, the findings and impressions were shared and discussed with other members of the WESTON ID/IQ project team.

WESTON project team members also have reviewed a variety of relevant documents provided by EPA, NHDES, HAWC, and the Town of Atkinson.

Based on the document review and site visit, the following uncertainties and data gaps have been identified and should be addressed by EPA to enable continued development of a Removal Action approach.

General

- Scope/extent of Service Area including identification of homes (and businesses) that will be served as a result of EPA's Removal Action.

- Prioritization of homes (and businesses) that will be served if implementation is to be phased.
- Uses/quantity of water to be provided for each home (and business). For instance, does the scope cover only drinking and cooking water or all water uses including irrigation and other “outdoor” uses?
- Duration or desired design life of water service or system.

Continuation of Bottled Water Service

- Cost and availability of bottled water service based upon a pre-determined length of time (5, 10, 20 years, etc.).
- Long term funding source for bottled water service (Town, State, Federal funding).
- Responsibility for long-term coordination/assurance of bottled water service.

In-Home Individual Water Treatment Units (Point of Entry Units)

- Treatment criteria for water quality.
- Location for units in each home and confirmation of adequate power capacity.
- Responsibility for long-term operation and maintenance performance and cost (including power, periodic carbon regeneration, and waste disposal, if any).

HAWC Water System Extension

- Topographic Survey – A current detailed topographic survey is necessary to accurately document existing conditions and to serve as a base for future planning and engineering design. The topographic survey should detail the Site and surroundings including natural and man-made features and ground surface. Limits of the survey should include all roadway topography centered 25 feet on either side of the pavement centerline (50 foot width), all house lots including property boundaries and buildings to which a connection is to be made and easements as needed, all utilities, culverts, and other conflicts including wetlands. Delineate all wetlands in the affected service area and include the bounds of the delineated area in survey data.
- Potential bedrock and boulder conflicts along the distribution system alignment to depth of 2 feet below pipe invert. This information is usually obtained using an Air Track-type drilling unit at designated locations following the completion of the topographic survey and after the conceptual waterline pipe route is established.
- Obtain access agreements with all property owners in the Service Area for survey and ultimately for construction.
- Obtain property easements from Belknap Drive or Emery Drive to the Waterwheel Estates Pump House and from Emery Drive to Oak Ridge Drive to loop the system.

- Obtain from each property owner or other source the location of septic systems, wells, and other obstructions to a water service line for the property.
- Receive assurance from the water supplier (HAWC) that water quantity, quality and pressure are available to all users within the designated Service Area.
- Specification of system elements required by the water supplier and/or ultimate system owner such as HAWC and agreement with the basis of design for the extension of the water service once the basis of design is developed.
- Determination whether fire protection capability is to be a feature of an extended water system and, if so, the specifications/criteria of this capability.
- Identification of authorities for work within public rights-of-way in the Service Area such as a local road agent or public works director along with criteria/standards/requirements for such work.

Extension of Water System from the Nearest Publicly Owned System

- Interest and capability of other publicly owned water supply entity such as a municipality or public water authority to supply water for the Service Area (which may require approval of the Public Utility Commission and/or other approvals).
- Interest and capability of a local entity such as the Town of Atkinson to own, operate and maintain a distribution system to the Service Area.
- All of the items as listed under the extension of HAWC System.
- Additional land survey, wetlands delineation, bedrock probes, and easements to reach the Service Area from the publicly owned water system.

Development of New Water Source(s), Potential Treatment and Distribution

- Interest and capability of a local entity such as the Town of Atkinson to permit, own, operate and maintain a new water supply and distribution system to the Service Area.
- Potential site(s) for a new well or wells and agreement with site property owner(s).
- Treatment criteria for water quality.
- All of the items as listed under the extension of the HAWC System.
- Additional land survey, wetlands delineation, bedrock probes, and easements to reach the Service Area from the water source site(s).

RECOMMENDED ACTIONS

WESTON recommends that this data gaps document be reviewed and discussed with the OSC. Through discussion, elements can be prioritized and targeted as actions for various entities as determined by the OSC. Some work may be performed by EPA, either directly or through

START Core Readiness Team (CRT) Technical Direction Documents (TDDs), ID/IQ tasks as designated through TO modifications, or by others (NHDES, local municipality).

Sequencing and scheduling of data collection should also be planned to prioritize work that requires long-duration collection efforts.